

DOCUMENT RESUME

ED 399 096

RC 020 420

AUTHOR Guard, Roger; And Others
TITLE Ohio Valley Community Health Information Network.
INSTITUTION Cincinnati Univ., Ohio. Medical Center.
SPONS AGENCY National Telecommunications and Information Administration (DOC), Washington, D.C.
PUB DATE May 95
NOTE 18p.; Paper presented at the Annual Conference on Rural Datafication (3rd, Indianapolis, IN, May 22-24, 1995).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Descriptive (141)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Access to Information; Demonstration Programs; *Health Education; *Health Promotion; Health Services; Information Dissemination; Information Needs; *Information Networks; Internet; Online Systems; *Program Development; Rural Areas; Telecommunications
IDENTIFIERS Appalachia; *Ohio Valley; Telecommunications Infrastructure; *User Training

ABSTRACT

The Ohio Valley Community Health Information Network (OVCHIN) works to determine the efficacy of delivering health information to residents of rural southern Ohio and the urban and suburban Cincinnati area. OVCHIN is a community-based, consumer-defined demonstration grant program funded by the National Telecommunications and Information Administration and by corporations and universities. Information is delivered via ISDN, standard dial, and dedicated network connections. Purposes of OVCHIN include providing equitable, widespread access to health-related information resources in the Ohio Valley, particularly for rural Appalachian and urban minority populations; providing comprehensive training programs for health information resources; demonstrating the use of existing telecommunications and hardware infrastructure for information dissemination; and contributing to health education and awareness. Project needs assessment revealed information needs on seven preeminent topics: drugs, diseases, physician referrals, general health and wellness, insurance, health planning, alternative therapies, and health literature. Among the materials available through OVCHIN are 14 electronic health information resources selected to meet assessed needs, information on "hot topics," and "ask the expert" electronic bulletin boards. A multifaceted approach to training the diverse users of the OVCHIN region includes in-person, on-site training in public libraries, public schools, and universities; training videos available via loan, purchase, and public television broadcast; and televised interactive training programs. This report also describes OVCHIN's hardware and software; rural problems relevant to the network's effectiveness; standards issues; the future of OVCHIN; and political, economic, and technical lessons learned. (RE)

OHIO VALLEY COMMUNITY HEALTH INFORMATION NETWORK

Roger Guard

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

☒ This document has been reproduced as
received from the person or organization
originating it.
☐ Minor changes have been made to improve
reproduction quality.

• Points of view or opinions stated in this docu-
ment do not necessarily represent official
OERI position or policy.

PERMISSION TO REPRODUCE AND
DISSEMINATE THIS MATERIAL
HAS BEEN GRANTED BY

J. Roger Guard

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)

BEST COPY AVAILABLE

Ohio Valley Community Health Information Network

Roger Guard
Medical Center Libraries
231 Bethesda Avenue
University of Cincinnati
PO Box 670574
Cincinnati, Ohio 45267-0574
Telephone: (513) 558-5656
Fax: (513) 558-2682
Internet: roger.guard@uc.edu

Coauthors:
Doris Haag
Birsan Kaya
Stephen Marine
Leslie Schick
Steve Shoemaker
Gaylene Tsipis

Abstract

The *Ohio Valley Community Health Information Network* is a community-based, consumer-defined, publicly and privately funded demonstration grant program to determine the efficacy of delivering health information to the rural residents of southern Ohio and to the urban and suburban communities in the Cincinnati region. Delivery is via ISDN, standard dial, and dedicated network connections. Determining needs, community interest, funding sources, and overcoming technical obstacles are discussed in this paper.

Introduction

University of Cincinnati Medical Center (UCMC) and Ohio University, with numerous community partners, are building the *Ohio Valley Community Health Information Network (OVCHIN)*. The project is

partially funded by a grant from the Telecommunications and Information Infrastructure Assistance Program (TIIAP) sponsored by the National Telecommunications and Information Administration (NTIA), a division of the U.S. Department of Commerce. The grant award of \$375,000 is matched with \$486,000 of local contributions from the University of Cincinnati, Ohio University, the State of Ohio, Cincinnati Bell Telephone, TriState Online, WCET TV, Ovid Technologies Inc., OhioLINK, and numerous vendors of electronic information resources, software, and hardware.

From its inception, the management of the project has been inclusive. A topic, such as health care, that is constantly in the public eye, requires a "big tent" approach. During initial discussions, it became apparent that several TIIAP proposals would be submitted from the Cincinnati area. From discussions among the interested parties a conceptual model for providing information to the citizens of the region emerged. That model comprised three basic areas of information of most interest to the public: education, government, and health. See *Exhibit A* for a diagram of the conceptual model.

The "big tent" approach has worked in the project planning and development process also. As awareness of the *OVCHIN* has grown, additional partners, from both the public and private sectors, have joined the effort.

Purposes

The purposes of the *OVCHIN* are:

1. To provide easy, equitable, and widespread access to health related information resources to

the general public in the Ohio Valley region, particularly rural Appalachian and urban minority populations. See *Exhibit B* for a map of the region.

2. To provide comprehensive training programs for these health information resources by working with community and regional partners.
3. To use, as much as possible, existing telecommunications and hardware infrastructure to extend health information resources to as many citizens of the Ohio Valley region as possible.
4. In an era of health care reform when patients participate more in their own care, to contribute to the health education and awareness of citizens of the Ohio Valley.

Needs Assessment

The expressed needs of ordinary people determined the resources selection process. Those needs were assessed in a number of ways, including an online survey of members of TriState Online (TSO), a regional Free-Net, and meetings of focus groups comprising citizens from the region. The data resulting from the needs assessment revealed seven preeminent health information needs:

- drug information
- disease information
- physician referral / find the expert
- wellness / general health
- insurance / health planning
- alternative therapies
- health literature

Continuous Evaluation

All members of the project team share the responsibility for evaluating the progress and effectiveness of the *OVCHIN*. Based on measurable

objectives with completion timelines, each development and implementation step is evaluated.

Evaluation is a continuous process throughout the grant's performance period. Evaluation of the employed technology, the chosen resources, and the training and communications programs follow the timeline for development and implementation. The evaluation of each step within these broad areas is documented in the quarterly reports submitted to NTIA. Evaluation results shape the *OVCHIN* by redirecting development and design to meet evolving needs.

Users of the system evaluate the effectiveness and usefulness of the resources' content, beginning with the alpha client site through the installation of the last public access site. Depending on the nature of the site and technical means of access, the evaluation format varies. For example, controlled sets of initial users are either interviewed, asked to complete surveys, or, when appropriate, convened as focus groups to provide feedback on the effectiveness of the resources. As implementation proceeds, online surveys - automatically formatted at the end of a user session - of Free-Net members and users at public access sites will be conducted.

Users of the *OVCHIN* are encouraged to use electronic bulletin boards to register their suggestions and evaluations. Project staff analyze bulletin board responses and redirect efforts accordingly. Use statistics, generated by the system, are continuously evaluated to determine the relevance and usability of each resource.

Information Resources

A Health Information Resources Selection Committee reviewed 75 electronic health information resources, assessing their value based on relevance to a stated need and on quality. The Committee evaluated those not available readily from another site via the Internet using criteria previously developed and successfully used by the UCMC Libraries for the selection of other electronic resources. The Committee selected 14 resources that directly meet one or more of the expressed needs. In addition, resources that are accessible via Internet are available through links from the *OVCHIN* Web Homepage.

OVCHIN users initially can access the following resources:

- Personal Medical Advisor
- Health Source
- Physician's Desk Reference
- Stedman's Medical Dictionary
- Merck Manual
- Hopeline
- Health Professionals Directory
- Directory of Community Services
- MEDLINE
- CINAHL
- AIDSLINE
- PsycINFO
- Health Plan
- CANCERLIT

In addition to access to specific resources, users can also access information about "Hot Topics." Initially, ten topics of high public interest are available on the "Hot Topics" list. They include:

- Aging
- AIDS
- Cancer
- Diabetes
- Emergency Preparation
- Heart Disease
- Sports Medicine

- Substance Abuse
- Wellness
- Women's and Children's Health

"Hot Topics" will continuously change, based on evolving health care developments and the changing health needs of the public. New topics can be easily added as the need arises, and topics whose relevance declines can be deleted.

Selecting a "hot topic" a user will find information drawn from a variety of resources organized for easy use by:

- Overview
- Additional Resources
- Professional Health Literature
- Community and Expert Resources

Commercially available information resources filled most of the identified needs. For "physician referral/find the expert," however, no existing resource fully met the need. Hopeline, the Health Professionals Directory, and the Directory of Community Services are under development to address the need for substance abuse referral, physician and other health care provider referral, and health/community services identification. The initial data for each of these resources already exists but has never been made publicly available in electronic form. The data owners - Cincinnati Drug and Poison Information Center, University of Cincinnati Hospital, and Cincinnati Community Chest respectively - have enthusiastically contributed the data and *OVCHIN* staff are developing the access tools. After initial development, other organizations throughout the Ohio Valley region will add their data.

The information needs assessment surveys and focus groups revealed a strong need for personalized "expert" information. In addition to the

standard electronic information resources, *OVCHIN* users have access to "Ask the Expert" electronic bulletin boards where physicians, nurses, pharmacists, and other health care professionals answer specific questions posed by users. Depending on the nature of the question, answers are either posted anonymously to the bulletin board or returned confidentially to the requester. A bulletin board is available for most "hot topics."

Timeline

The *OVCHIN* demonstration project began on October 12, 1994, the day the NTIA/TIIAP awards were announced. Planning and development began immediately. In June 1995 an initial suite of resources will be available to users accessing the *OVCHIN* from home. Installation of public access sites will begin in July and will be completed by November 1995. NTIA funding ends in March 1996. Several initiatives are underway to extend funding for the demonstration through June 1997. Twelve to eighteen months of operation are believed to be necessary to gather enough data to prove or disprove the validity of the project's hypothesis that the general public can effectively use electronic health information resources. See *Exhibit C* for a more detailed timeline.

Access

Providing the general public, particularly rural Appalachian and urban minority populations, easy, equitable, and widespread access to electronic health information resources has not been attempted before on a large scale. Presently, to find such resources the ordinary

citizen usually visits a public library, which often does not have a wealth of health care information, or an academic health sciences library that allows the general public to use its resources. Using the following approaches *OVCHIN* provides access to a broad population:

1. Personal Computers.

TriState Online (TSO), the Cincinnati area Free-Net, offers full *OVCHIN* access to all its members. This includes access to all information resources and "Ask the Expert" bulletin board use. Non-TSO members can access the standard information resources. Since the cost of membership is nominal, virtually anyone with a home computer in the Tri-State region will have full access. The Southeastern Ohio Regional Free-Net (SEORF), FamilyNet, and the Dayton Free-Net will offer the same access to residents of several southeastern Ohio counties, five southcentral Ohio counties, and the Dayton (Ohio) metropolitan area.

2. Public Access Workstations.

Public libraries, health clinics, hospital lobbies, pharmacies, and community centers in the region house public access workstations. Citizens who do not own personal computers can access *OVCHIN* through 40 dedicated workstations connected to TSO or SEORF. The same workstations will also be able to access information resources provided by other regional providers of health, education, and government information.

See *Exhibit D* for a diagram of access options.

Education and Training

Many health information resources, regardless of format, are complex. Even sophisticated users require training in some cases. A training effort of broad scope is necessary to make these resources usable by the general public. To meet the training requirements of the diverse users in the *OVCHIN* region, a multifaceted approach has been developed. The foundation for such a program is effective trainers. Two librarians dedicated to this project are developing and conducting training workshops on the use of *OVCHIN* resources. Other librarians from the UCMC Libraries and the Ohio University Health Sciences Library also contribute to training efforts.

1. In-Person/On-site.

Public libraries, public schools, community access cable agencies, the University of Cincinnati Medical Center Libraries, and the Ohio University Health Sciences Library provide training facilities for in-person, on-site training.

2. Video.

With the expertise and the production facilities of WCET-TV, Cincinnati public television, trainers are developing training videos. Ohio Valley citizens can borrow the videos from public libraries, or, for a nominal charge, buy personal copies.

3. Broadcast Video.

WCET-TV, which reaches over 180,000 homes and 300 schools through its Cable channels, will periodically broadcast the training videos over those channels. The videos will also be shared with other public television stations in the region for possible broadcast.

4. Broadcast Interactive.

WCET-TV, with other public television partners, will broadcast televised interactive training programs to citizens of the Ohio Valley region. The programs will feature a panel of experts fielding telephoned questions from the general public.

Infrastructure

The University of Cincinnati network (UCNet) is an Internet segment comprising a fiber optic backbone with 10 megabit copper wiring to most offices and classrooms. The *OVCHIN* server is a node on the backbone.

The primary *OVCHIN* server is UNIX based and runs Netscape World Wide Web (WWW) server software. TriState Online (TSO), whose server resides at the Cincinnati Chamber of Commerce, is the telecommunications gateway. TSO is equipped to receive Telnet connections, standard phone connections from 1.2 to 28.8 Kbps, and ISDN connections up to 128 Kbps.

Public access workstations are Pentium machines running Netscape client software. In the Cincinnati Bell Telephone (CBT) local calling area, they are connected to TSO via ISDN lines contributed to the project by CBT. In most other areas, workstations access the nearest Free-Net (usually a local call) through standard telephone lines and 28.8 Kbps modems.

For people who are unable to use a graphical WWW client to access the *OVCHIN*, the system provides Lynx, which creates text displays from the WWW server graphical displays.

University of Cincinnati computer science faculty and students are using Sybase relational database software to build the three locally developed resources: Hopeline, Health Professionals Directory, and Directory of Community Services. Later in the demonstration, WAIS will be tested for key word access across multiple resources.

Rural Issues

The telephone service landscape of southern Ohio is as varied as the terrain itself. Four major carriers and numerous smaller ones serve this diverse area. The residents of some of the most rural areas do not even have home telephone service, not to mention home computers with modems. The smaller carriers do not have ISDN capabilities, and do not plan for them in the near future. Local calling areas tend to be small outside Cincinnati, hence some areas can access OVCHIN only by long distance dial-up.

The OVCHIN strategy has been to employ the Free-Net model of broad access to the general public, enhancing existing Free-Nets where possible and encouraging new ones elsewhere. Because Ohio is the home of the Free-Net movement, this strategy has generated cooperation with the National Public Telecomputing Network, the developer and franchiser of Free-Nets, and has created a promising future of extending OVCHIN access to Free-Nets throughout Ohio. The keys to successful Free-Nets in rural areas seem to be:

- an institution of higher education with Internet access provides technical expertise, and sometimes, the necessary hardware and support;

- a group of local institutions forms a partnership either to financially support the Free-Net or to provide information resources for the network or both; the local institutions can be hospitals, businesses, business associations, public libraries, or schools;
- a network of some kind already exists for another purpose, such as telemedicine, distance learning, or agricultural extension services.

Training users in rural areas to use a resource such as OVCHIN is also a challenging proposition. After traveling long distances, trainers must often use facilities that were not intended for group training. A "train the trainer" approach can solve part of this problem if the site has someone who can assume local training responsibility.

Standards Issues

With a primary purpose of providing access to as many people as possible using systems that are as easy to use as possible, three basic standards needs emerged during the planning and development process:

1. Open Systems.

Standard protocols using de facto standard software and hardware are imperative.

2. Off-the-Shelf.

In addition to off-the-shelf hardware and software, commercially available information resources were chosen whenever possible. We built resources only when a commercial product was not available to meet a stated need.

3. User Friendly.

In trying to reach all socio-economic-education strata of the region, system design had to be simple and the software of the individual resources had to be easy to use.

Future

The NTIA grant performance period runs through March 1996. Because of the extensive planning and development needs of such a project, the implementation phase will be only nine months, with some public access sites active only the last four months. Chances, however, are good that the State of Ohio will partially fund an extension of the demonstration period through June 1997. The additional 15 months will provide an excellent opportunity to gather sufficient data, make system changes based on continual needs assessment, plan for state-wide expansion, and form the necessary partnerships to maintain the system both financially and operationally.

Other state opportunities have arisen. SchoolNet, the State of Ohio's plan to wire every public school classroom in the state and to equip many of them with workstations, will be a vehicle to carry *OVCHIN* to virtually every public school student in Ohio. The Ohio Public Library Information System (OPLIN), which is in the planning stage, may provide the same vehicle to most of the 250 public libraries in the state.

Additionally, at least four other Ohio projects that hope to obtain NTIA funding this year will both leverage and be leveraged by the *OVCHIN*.

Information vendors are working closely with us to develop user interfaces that meet the needs of the

general public. Many of their products were originally designed for professional use. By participating in a test project such as *OVCHIN*, they have the opportunity to develop systems that appeal to a new and much larger market.

Lessons Learned

The lessons we have learned from the *OVCHIN* project fall into the following ranked hierarchy:

- political lessons
- economic lessons
- technical lessons

1. Political Lessons.

Without solid political underpinnings, the economic and technical solutions will not happen. Developing sound partnerships based on openness, honesty, and trust is an absolute. Forming strong personal ties with key people is critical to ensuring continuous and accurate communication. There will, however, be occasional discord, usually resulting from miscommunication or misunderstanding. Regardless of intentions, it is impossible to communicate perfectly. The key is to accept this fact, be humble even when successful, and immediately rectify problems.

2. Economic Lessons.

Acquiring local matching funds for a 50-50 matching grant is a daunting task. Potential private partners are skeptical until federal funding is approved. A surprising amount of attractive funding turns out to be other federal money, which cannot be used to match NTIA funding. The short time frame for preparing most grant proposals precludes forming partnerships with firm financial commitments. The key to our

success was finding an underwriter, who secured our matching commitment for the proposal. The University of Cincinnati Medical Center underwrote the *OVCHIN* local commitment. During the first six months of the grant period, we successfully defrayed the University's match by negotiating firm commitments from a variety of private and public sector partners.

3. Technical Lessons.

Political and economic negotiations frame the environment for the technical solutions. Identifying, testing, and determining the technical options must be done within political and economic realities. The results may not always be "the best," but they will work because of the political framework agreed upon by parties with vested interests.

Conclusion

Extending the information highway and delivering resources to underserved rural areas requires collaboration among many diverse organizations, the cooperation of many more organizations and individuals, and a commitment to teamwork at every level of operations and administration.

Exhibit A
Conceptual Model

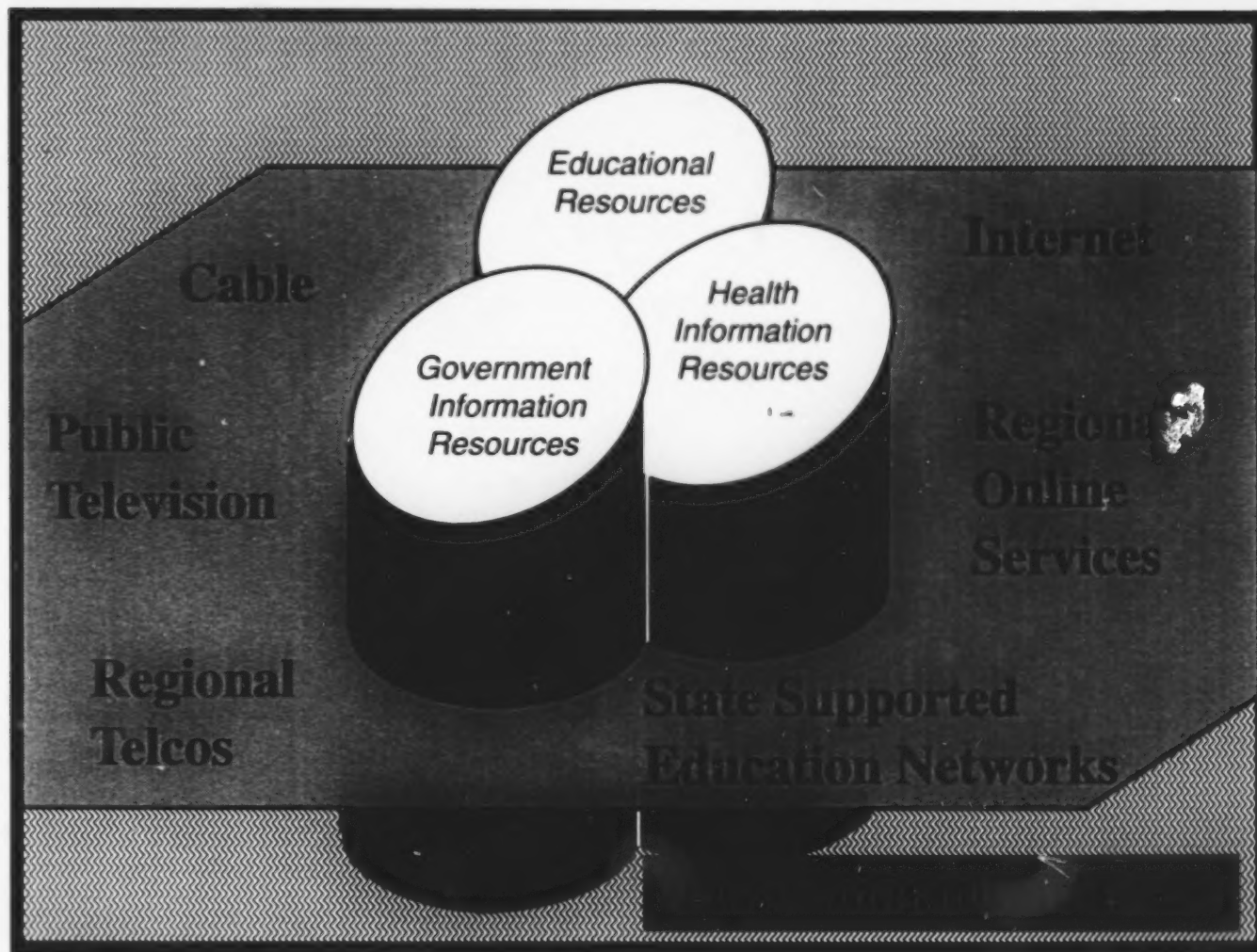


Exhibit B
Map

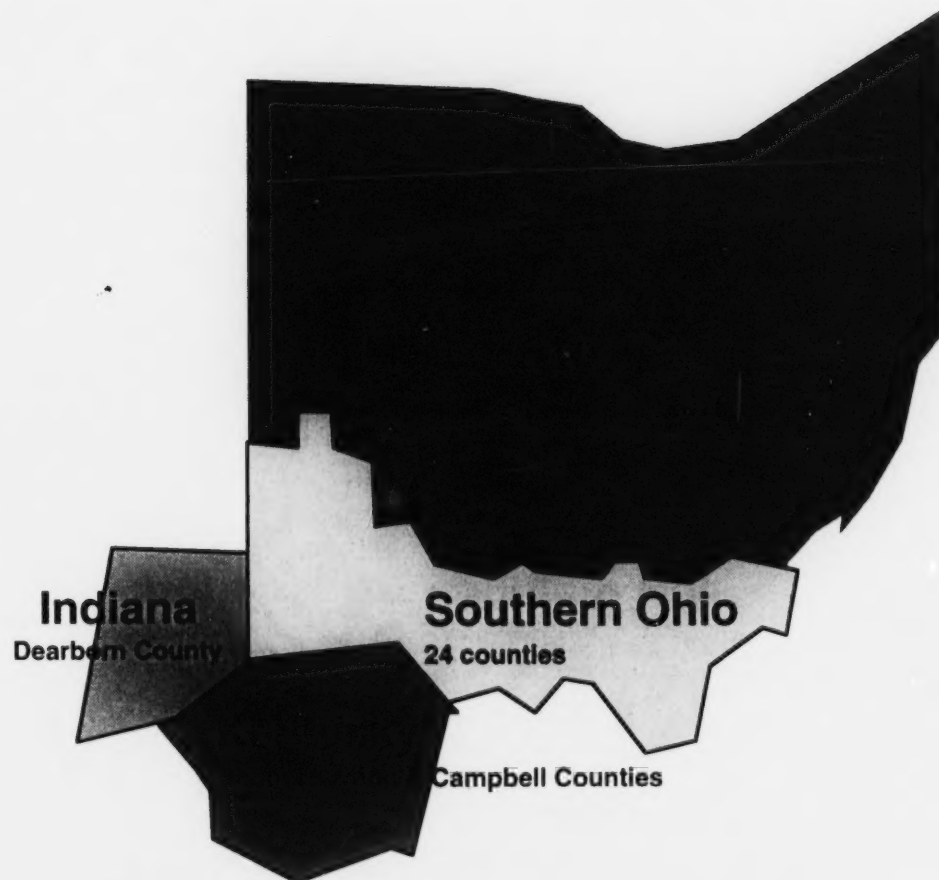
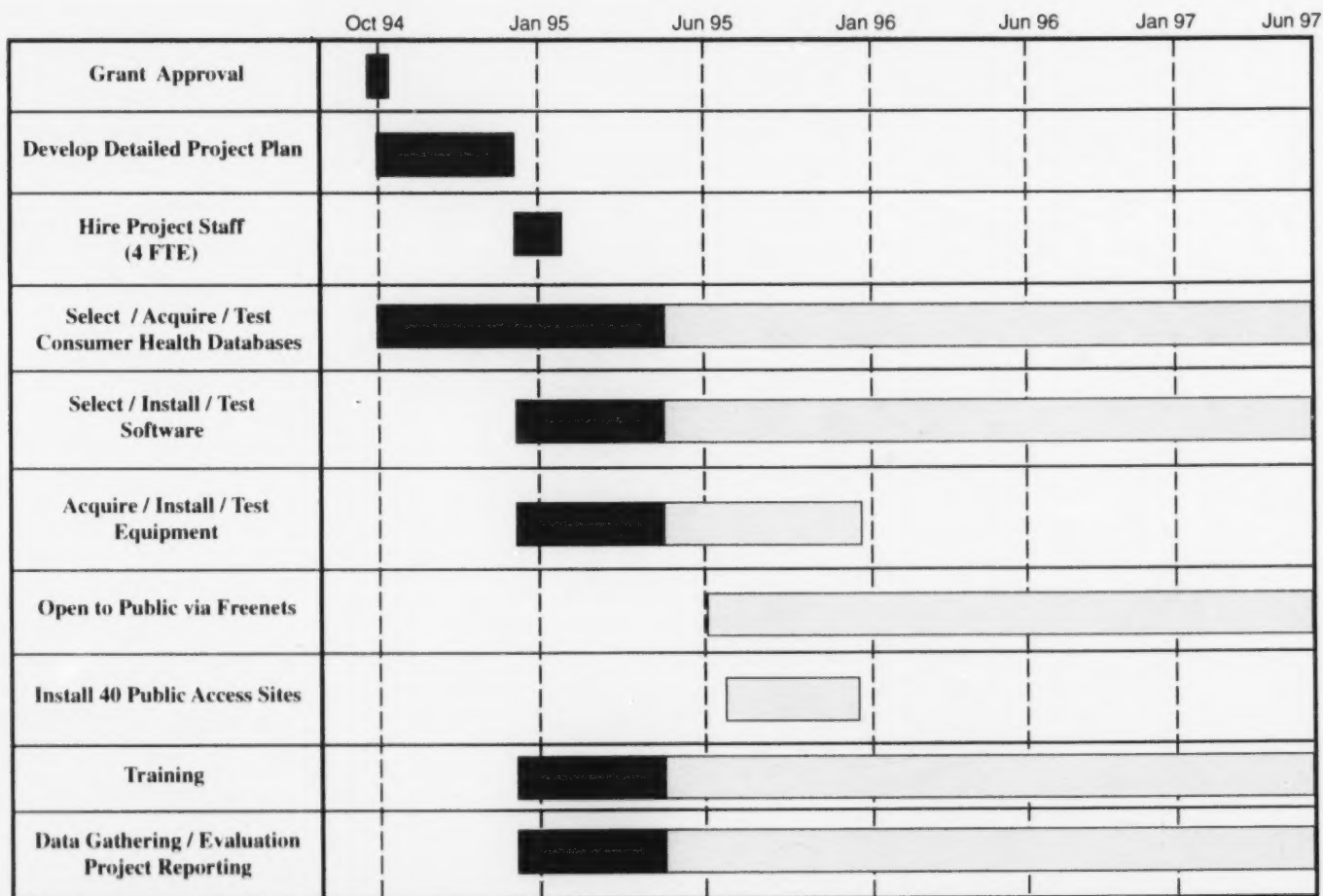


Exhibit C
Timeline

**Legend**

Completed 
Planned 

Exhibit D
User Access